XV.—*Australasian Rotifera.*

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Plate XIX.

Some years ago I collected Rotifera in New Zealand and Australia while visiting those countries in the course of the Shackleton Antarctic Expedition, and the results appeared in two papers published in this Journal in 1911 (*10*) (*11*).*

Since then I have been enabled to extend my studies of the Australasian Rotifera-fauna through the kindness of friends who sent material to me. And, moreover, many animals about which I was doubtful when those papers were published have since been identified, or found to be undescribed.

The present paper deals with these species.

LIST OF SPECIES COLLECTED.

In Australia.

(All in ponds at Sydney.)

Œcistes cristatus sp. n.
Elosa worrallii Lord (*7*).
Furcularia forficula Ehr.
Rattulus capucinus Wier. u. Zach. (*16*).
Polychætus subquadratus Perty (*13*).
Monostyla hamata Stokes (*15*).
M. batillifer sp. n.
M. (longstyled species of Harring).
Metopidia ehrenbergi Perty (*13*).
M. heterostyla sp. n.
M. quinquecostata Lucks (*8*).
M. collaris Stokes (*15*).
Pedalion mirum Hudson.

In New Zealand.

(All from ponds near the Hermitage, Mount Cook.)

Monommata appendiculata Stenroos (*14*).
Copeus caudatus Collins (*2*).
Rattulus scipio Gosse (*6*).
R. orca sp. n.
Diurella insignis Herrick (*5*).
Scaridium longicaudatum Müll. (*9*).
S. eudactylotum Gosse (*6*).
Polychætus collinsi Gosse (*6*).
Monostyla bulla Gosse (*4*).
Pterodina striata sp. n.

* The figures in brackets refer to the Bibliography at the end of the paper.

Œcistes cristatus sp. n. Plate XIX, fig. 5.

Specific Characters.—Large and stout. Corona much wider than trunk, bearing towards the ventral edge a small pectinate process, and towards the dorsal edge two very large hyaline processes, which curve forward. Anus nearly on a level with chin. Foot wrinkled.

Description.—Length (with foot partly contracted) 320 μ, trunk 120 μ, foot 100 μ; breadth of head (dorso-ventral) 145 μ, of trunk 80 μ.

The animal is closely related to *Œ. pectinifer* Murray (*12*), with which alone it is necessary to compare it. The process on the corona, shaped like a hand, is in this species smaller and less deeply lobed. The other two processes are much larger and expanded into hyaline ridges, which in lateral view recall the crest of the bird known as "cock-of-the-rock," hence the specific name. The chin is less prominent and bears no processes.

The lack of further detail and of figures of the animal in other positions is due to an accident which destroyed the preserved specimen. The cover slip got cracked and it dried up.

Habitat.—Pond in Sydney.

Monommata appendiculata Sten. (*14*).

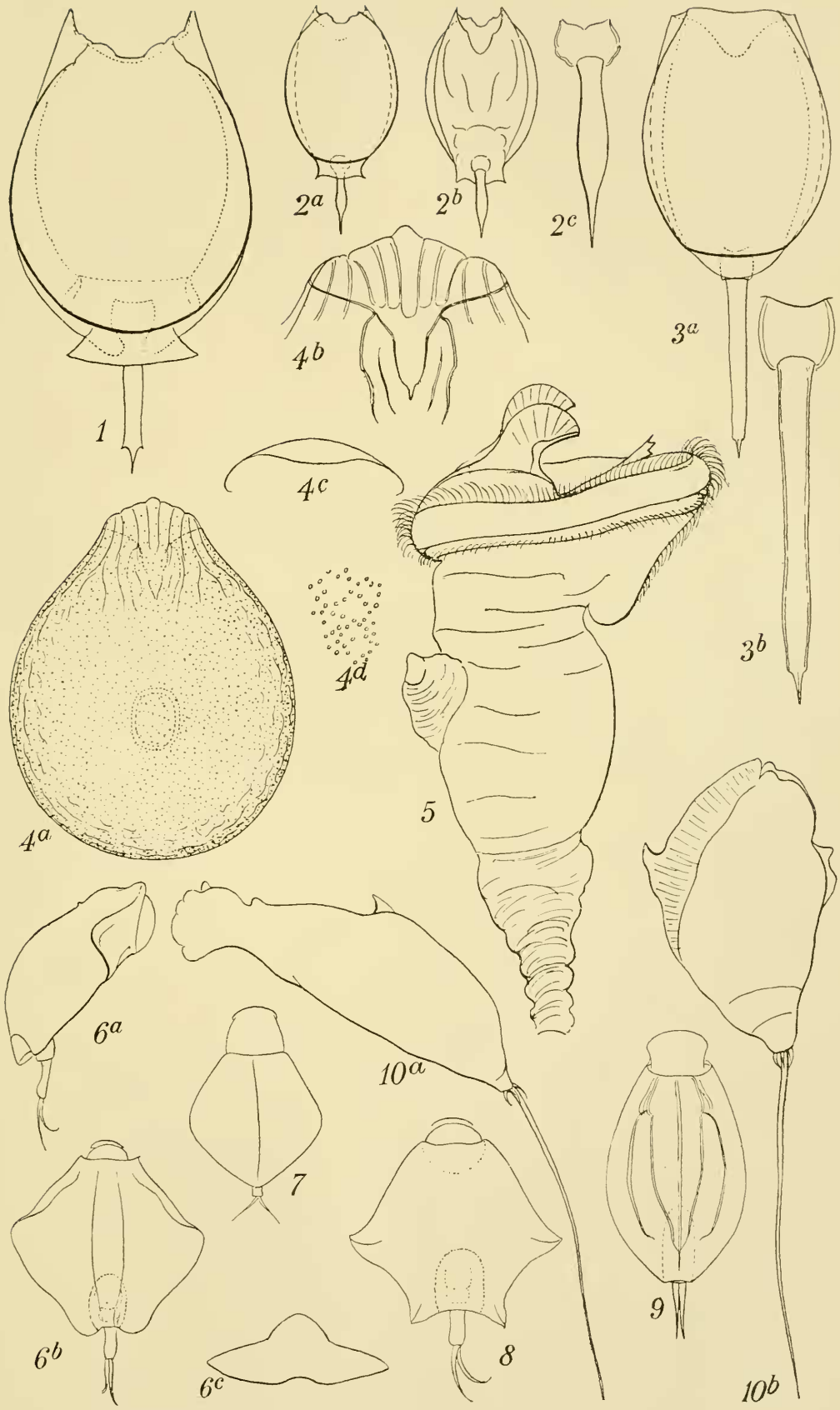
While agreeing entirely as to general form with Stenroos's animal, there are several points of difference, which, while they may not be of specific value, yet should be noticed.

The pointed dorsal process on the foot is, in my examples,

EXPLANATION OF PLATE XIX.

Fig. 1. —*Monostyla lamellata*, Dorsal view.
,, 2*a*.—*M. batillifer* sp. n. Dorsal view.
,, 2*b*. Ditto. Ventral view.
,, 2*c*. Ditto. Toe.
,, 3*a*.—*Monostyla* sp. Dorsal view.
,, 3*b*. Ditto. Toe.
,, 4*a*.—*Pterodina striata* sp. n. Dorsal view.
,, 4*b*. Ditto. Anterior part (ventral).
,, 4*c*. Ditto. Optical section.
,, 4*d*. Ditto. Part of the surface markings.
,, 5. —*Œcistes cristatus* sp. n.
,, 6*a*.—*Metopidia heterostyla* sp. n. Lateral view.
,, 6*b*. Ditto. Dorsal view.
,, 6*c*. Ditto. Optical section.
,, 7. — *M. rhomboidula*. Dorsal view.
,, 8. — *M. ehrenbergi*. Dorsal view.
,, 9. — *M. quinquecostata*. Dorsal view.
,, 10*a*. *Rattulus orca* sp. n. Fully extended.
,, 10*b*. Ditto. Contracted.

(All figures multiplied 270 diam.)



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AUSTRALASIAN ROTIFERA.

double. The processes are extremely thin, like knife-blades, and closely appressed to one another. Stenroos shows this process as terminating the body, whereas I see an apparent segment posterior to that from which the toes spring.

In both dorsal and ventral views the toes appear to be widely separated, springing quite laterally from the segment bearing them.

The toes are quite equal, while Stenroos says they are unequal.

I have not seen the animal alive. The contracted specimens have the toes curved forward till their tips are nearly on a level with the front of the lorica.

Rattulus orca sp. n. Plate XIX, figs. 10*a*, 10*b*.

Specific Characters.—Lorica and toe of about equal length; lorica narrow, elongate, having a prominent ridge on the anterior half, the ridge with a large procurved spine. Substyles short and subequal.

Description.—Length of extended lorica, excluding the head, 150 μ, of contracted lorica 140 μ, of toe 160 μ, of substyles 10 μ.

The figures explain the form best. The specimens were deeply coloured by osmic acid, so I have not any details of the internal structure. I never saw the live animal. The toe is not bent at an angle to the body, but follows its median line. The hyaline ridge covers rather more than the anterior half of the body. The spine varies in size, and is sometimes more prominent than in the examples figured.

The resemblance of the dorsal "fin" to that of the Killer Whale (*Orca gladiator*) suggested the specific name. Of course, it differs in being procurved instead of recurved.

Habitat.—Pond in moraines of Müller Glacier, New Zealand; some dozens of specimens.

The dorsal spine distinguishes the species from all others.

Monostyla sp. (undescribed). Plate XIX, figs. 3*a*–3*b*).

(Discovered, and to be described, by Mr. Harring.)

Description.—Large, oval; dorsal plate broader, truncate at both ends. Anterior dorsal margin nearly straight, ventral deeply excavated, the middle part being a flat V with the bottom rounded. Lateral sulcus moderately deep. Posterior lobe of lorica not very prominent, rounded. Toe long, with nearly parallel sides, with rounded shoulders and short claw.

Length of contracted lorica 130 μ, of dorsal plate 120 μ, of toe 85 μ, of claw 8 μ; breadth of dorsal plate 90 μ, of ventral plate 80 μ, of anterior margin 60 μ.

Closely related to *M. lunaris*, of which I thought it might be a

variety, it is distinguished mainly by the longer toe and the different frontal margin, both dorsal and ventral margins of *M. lunaris* being deeply excavate.

The claw has a slight suggestion of being double, but no actual separation has been seen.

Habitat.—Ponds in Sydney and New Zealand.

Monostyla batillifer sp. n. Plate XIX, figs. 2*a*–2*c*.

Specific Characters.—Very small, oval. Dorsal plate broader; frontal margins deeply excavate, ventral more deeply. Posterior lobe of lorica a broad hyaline process with prominent external angles. Toe constricted near base, expanded in middle, running out to long fine point.

Description.—Length of contracted lorica 80 μ, of dorsal plate 70 μ, of toe 33 μ; breadth of dorsal plate 55 μ, of ventral plate 45 μ, of anterior margin 25 μ, of posterior process 22 μ.

The dorsal plate is considerably narrowed at both ends, and laterally rounded. Its lateral margin can be traced right to the front. The dorsal anterior margin is very narrow, with a trefoliar excavation; the ventral has a much deeper trefoliar excavation. The posterior projection, which is usually supposed to belong to the ventral plate, is similar to that of *Cathypna leontina* and *M. lamellata.*

If the two species could not be compared except in their published figures, and no notice were taken of size, as is apt to happen since authors draw their figures to various sizes, it might be supposed that *M. batillifer* was our old friend *M. lamellata* under a new name.

They really differ in every detail, but if drawn of the same size they look very similar. I have here drawn *M. lamellata* Daday (*3*) (Plate XIX, fig. 1) to the same scale, in order to show the extreme difference in size. *M. lamellata* is probably the largest species of the genus—*M. batillifer* is one of the smallest. The posterior processes, the anterior margins, the toes, are of different form in the two species.

The toe is of the same type as that of *M. hamata* and *M. closterocerca.* The ventral plate has some characteristic markings (fig. 2*b*).

Habitat.—Pond in Sydney, fairly abundant.

Monostyla hamata Stokes (*15*).

The dorsal plate of Australian examples is symmetrically wrinkled or faceted, as in those from South America and Ireland. The character is not referred to in the original description, so it is possible this is a different species.

Metopidia heterostyla sp. n. Plate XIX, figs. 6*a*–6*c*.

Syn. (prob.) *Monostyla rhomboides* Dieffenbach (*17*), not Gosse.

Specific Characters.—Of medium size; lorica broadly rhomboid, margins in front of lateral angles folded back, posteriorly rounded into shallow excavation; a rounded dorsal keel. Toes apparently unequal, the right gently decurved, the left shorter and strongly decurved.

Description.—Length of contracted lorica 85 μ, of right toe 25 μ; breadth of lorica 90 μ.

The keel does not seem to be a hyaline plate as in *M. triptera*. From momentary glimpses obtained as the animal turns over, the section appears to be as shown in fig. 6*c*. The lorica has a shallow dorsal excavation in front. The folding back of the front part of the lateral margin is very remarkable (figs. 6*a*–6*b*). I cannot trace the line of the margin to the very front. The lorica ends posteriorly in two rounded prominences, separated by a shallow sulcus.

It is not quite certain that the left toe is really shorter. The greater curvature might cause the appearance, but I think it is really shorter. It is constantly the left toe which has this character.

This is probably not the first introduction of this animal to notice, though, so far as I am aware, the heterostylous character of the toes has not been remarked. The animal has very likely been figured as *M. rhomboides* (*6*), and the name readily suggests itself, when we see such a "rhomboid" animal. Gosse's species, however, was a more elongate animal, less markedly rhomboid, and without the backward folding of the margin. I do not judge merely by Gosse's figures, but have often seen the animal. It would be figured here for comparison, but I have not at the moment access to specimens, as Mr. Rousselet is absent from home.

M. heterostyla need only be compared with two other species. *M. rhomboidula* Bryce (*1*) is of very similar form, but it is much smaller (see fig. 7), the margin is not folded back, and the posterior end of the lorica runs out to an obtuse angle.

M. ehrenbergi Perty (*13*) is really the closest relative of *M. heterostyla*. It is of the same size (see fig. 8), but is easily distinguished by the lateral and posterior projections. The lateral margin is not folded back. The foot is similarly heterostylous, though I know of no reference to the fact.

Habitat.—Pond in Sydney; many specimens.